IS 11910 (1986): Spearmint Oil, Food Grade [FAD 8: Food Additives]

BLANK PAGE

IS : 11910 - 1986

(Reaffirmed 2003)

Indian Standard

SPECIFICATION FOR SPEARMINT OIL, FOOD GRADE

UDC 664·099 : 665·527·652

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2

May 1987

Indian Standard

SPECIFICATION FOR SPEARMINT OIL, FOOD GRADE

Food Additives Sectional Committee, AFDC 19

Chairman	*Representing*
DR T. S. SANTHANAKRISHNAN*	Bush Boake Allen (India) Ltd, Madras
Members	
SHRI B. HANUMANTHA RAU (*Alternate* to DR T. S. Santhanakrishnan)	
DR J. C. ANAND DR S. JINDAL (*Alternate*)	All India Food Preservers' Association, New Delhi
DR S. S. ARYA DR (SHRIMATI) T. S. VASUNDHARA (*Alternate*)	Defence Food Research Laboratory (Ministry of Defence), Mysore
SHRIMATI ANITA CHAUDHARY SHRI R. J. VERMA (*Alternate*)	Directorate of Marketing and Inspection, Ministry of Agriculture and Rural Development, New Delhi
SHRI M. V. DESAI DR J. M. TUREL (*Alternate*)	Atul Products Limited, Atul
BRIG S. K. DEWAN SHRI K. S. KRISHNAMURTHY (*Alternate*)	Technical Standardization Committee, Army Purchase Organization, New Delhi
SHRI P. K. DHINGRA	Food Research and Standardization Laboratory, Ghaziabad
DRUGS CONTROLLER (INDIA) DEPUTY DRUGS CONTROLLER (INDIA) (*Alternate*)	Ministry of Health and Family Welfare
SHRI R. C. GUPTA SHRI S. N. PANDEY (*Alternate*)	Directorate General of Technical Development, New Delhi
SHRI R. S. IYER DR V. S. MOHAN (*Alternate*)	Glaxo Laboratories (India) Limited, Bombay
SHRI J. C. JAISANI SHRIMATI DEBI MUKHERJEE (*Alternate*)	Directorate General of Health Services (Ministry of Health and Family Welfare), New Delhi
DR E. K. JAYANARAYANAN SHRI D. K. RASTOGI (*Alternate*)	Mohan Meakin Limited, Ghaziabad
JOINT COMMISSIONER (DAIRY DEVELOPMENT) DEPUTY COMMISSIONER (DAIRY DEVELOPMENT) (*Alternate*)	Department of Agriculture (Ministry of Agriculture and Rural Development), New Delhi

*Dr T. S. Santhanakrishnan acted as chairman at the meeting in which this document was finalized.

(*Continued on page* 2)

(*Continued from page* 1)

Members	*Representing*
SHRI S. KASTHURI PUBLIC ANALYST (*Alternate*)	King Institute, Madras
SHRI J. C. KATHRANI DR S. S. PANDIT (*Alternate*)	Asian Chemical Works, Bombay; *and* All India Saccharin Manufacturers' Association, Bombay
SHRI S. K. KHANNA	Industrial Toxicology Research Centre, Lucknow
SHRI V. K. MENON	Amar Dye Chemi Limited, Kalyan
DR M. J. MULKY DR V. R. SHIRHATTI (*Alternate*)	Hindustan Lever Limited, Bombay
DR A. G. NAIK KURADE	Indian Dehydrated Foods Industries Association, New Delhi
DR B. K. NANDI SHRI M. M. KWATARA (*Alternate*)	Foods and Nutrition Board, Department of Food (Ministry of Food & Civil Supplies), New Delhi
DR C. S. NARAYANAN DR C. ARUMUGHAN (*Alternate*)	Regional Research Laboratory (CSIR), Trivandrum
DR K. M. NARAYANAN DR M. K. JAIN (*Alternate*)	National Dairy Research Institute (ICAR), Karnal
SHRI A. S. RAJADHAYKSHA SHRI S. R. PALEKAR (*Alternate*)	Corn Products Company (India) Pvt Ltd, Bombay
DR R. RAJAGOPALA RAO DR R. SESHADRI (*Alternate*)	Central Food Technological Research Institute (CSIR), Mysore
SHRI N. RAMAMURTHY	Indian Confectionery Manufacturers' Association, New Delhi
REPRESENTATIVE	The Federation of Hotel and Restaurant Association of India, New Delhi
DR A. K. ROY SHRI D. S. CHADHA (*Alternate*)	Council for Indian Food Trade and Industry, New Delhi
SHRI M. W. SHENDE SHRI K. P. RANE (*Alternate*)	Hickson & Dadajee Limited, Bombay
DR I. S. SHENOLIKAR DR RAMESH BHAT (*Alternate*)	National Institute of Nutrition, Hyderabad
SHRI I. A. SIDDIQI	Directorate of Vanaspati, Vegetable Oils & Fats, Ministry of Food and Civil Supplies, New Delhi
DR T. V. SUBBAIAH DR R. K. MEHTA (*Alternate*)	Indian Chemical Manufacturers' Association, Calcutta
SHRI S. B. SULE SHRI D. B. BEDEKAR (*Alternate*)	Naarden (India) Limited, Bombay
SHRI A. TIWARI DR R. M. OZA (*Alternate*)	Central Salt & Marine Chemicals Research Institute, Bhavnagar
DR G. M. TIWARI DR C. P. S. MENON (*Alternate*)	Britannia Industries Ltd, Bombay
SHRI M. B. TURAKHIA SHRI B. J. NAVLOOR (*Alternate*)	Idachem Industries Pvt Ltd, Bombay
SHRI P. C. VIN	Vin Flavours, Vadodara
SHRI T. PURNANANDAM, Director (Agri & Food)	Director General, BIS (*Ex-officio Member*)

Secretary

SHRIMATI SHASHI SAREEN
Deputy Director (Agri & Food), BIS

(*Continued on page* 8)

Indian Standard

SPECIFICATION FOR SPEARMINT OIL, FOOD GRADE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 November 1986, after the draft finalized by the Food Additives Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 With the increased production of processed foods, manufacturers have started adding a large number of substances, generally in small quantities, to improve the appearance, flavour, texture or storage properties of the processed foods. As certain impurities in these substances could be harmful, it is necessary to have a strict quality control of these food additives. A series of standards is, therefore, being prepared by this Institution to cover purity and identification of these substances. These standards would help in checking purity which requires to be checked at the stage of manufacture for it is extremely difficult (and in many cases impossible) to detect the impurity once these substances have been added to the processed foods. Besides these standards are intended to guide the indigenous manufacturers in making their product conform to specifications that are accepted by scientists, health authorities and international bodies.

0.3 Spearmint oil is the volatile oil obtained by steam distillation from the fresh overground parts of the flowering plant *Mentha spicata* Linn (Common Spearmint), or of *Mentha cardiaca* Gerard ex Baker (Scotch Spearmint) (Fam Labiatae).

0.3.1 Spearmint oil is used as a flavouring agent in foods.

0.4 In the preparation of this standard considerable asssistance has been derived from Food Chemical Codex, Pub. National Academy of Sciences and National Research Council, Washington D C, USA.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for spearmint oil, food grade.

2. REQUIREMENTS

2.1 Description — Spearmint oil shall be in the form of a colourless, yellow or greenish-yellow liquid, having the characteristic odour and taste of spearmint.

2.2 Angular Rotation — The angular rotation at 25°C in neat oil in a 100-mm tube shall be between —48° to —59°.

2.3 Reaction to Litmus — A recently prepared solution of the sample in 80 percent alcohol shall be neutral or only slightly acid to moistened litmus paper.

2.4 Refractive Index — The refractive index at 20°C shall be between 1·484 and 1·491.

2.5 Solubility in Alcohol — One millilitre of oil shall be soluble in one millilitre of 80 percent alcohol. On further dilution the solution may become turbid.

2.6 Specific Gravity — The Specific gravity at 25°/25°C shall be between 0·917 and 0·934.

2.7 The material shall also conform to the requirement given in Table 1.

TABLE 1 REQUIREMENTS FOR SPEARMINT OIL, FOOD GRADE

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			Appendix of this Standard	Clause of IS : 1699-1974*
(1)	(2)	(3)	(4)	(5)
i)	Ketones, percent by volume, *Min*	55	A	—
ii)	Heavy metals (as pb), mg/kg, *Max*	40	B	—
iii)	Lead (Pb), mg/kg, *Max*	10	—	9
iv)	Arsenic (as As), mg/kg, *Max*	3	—	10

*Methods of sampling and test for food colours (*first revision*).

3. PACKING, STORAGE AND MARKING

3.1 Packing — The material shall be packed to the brim in air-tight containers. The containers shall be such as to preclude air contamination of the contents with metal or other impurities.

3.2 Storage — The material shall be stored in a cool place protected from light.

3.3 Marking — Each container shall be marked legibly to give the following information:

a) Name of the material including the words, 'food grade';
b) Name and address of the manufacturer;
c) Minimum net mass of contents;
d) Batch or code number; and
e) Date of manufacture.

3.3.1 The container may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

4. SAMPLING

4.1 The representative samples of the material shall be drawn and conformity of the material to the requirements of this specification shall be determined according to the procedure prescribed in **3** of IS : 1699-1974*.

5. TESTS

5.1 Tests shall be carried out by the methods specified in col 4 and 5 of Table 1.

5.2 Quality of Reagents — Unless specified otherwise pure chemicals and distilled water (*see* IS : 1070-1977†) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

*Method of sampling and test for food colours (*first revision*).
†Specification for water for general laboratory use (*second revision*).

APPENDIX A

[*Table* 1, *Item* (i)]

DETERMINATION OF KETONES

A-1. REAGENTS

A-1.1 Sodium Sulphite Solution — A 30 percent aqueous solution, freshly prepared.

A-1.2 Phenolphthalein Test Solution — Dissolve 1 gram of phenolphthalein in 100 ml of alcohol.

A-1.3 Acetic Acid Solution — 50 percent (*v*/*v*).

A-2. PROCEDURE

A-2.1 Pipette a 10-ml sample into a 100-ml cassia flask fitted with a stopper. Add 50 ml solution of sodium sulphite. Add 2 drops of phenolphthalein test solution and neutralize with a 50 percent (*v*/*v*) acetic acid solution. Heat the mixture in a boiling water bath, and shake the flask repeatedly, neutralizing the mixture from time to time by the addition of a few drops of the 50 percent acetic acid solution, stoppering the flask to prevent loss of volatile material. When no coloration appears on addition of a few more drops of phenolphthalein test solution and heating for 15 minutes, cool to room temperature. When the liquids have separated completely, add sufficient sodium sulphite solution to raise the lower level of the oily layer within the graduated portion of the neck of the flask.

A-3. CALCULATION

$$\text{Ketones, percent by volume} = 100 - (V \times 10)$$

where

V = the number of ml of separated oil in the graduated neck of the flask.

APPENDIX B

[*Table* 1, *Item* (ii)]

DETERMINATION OF HEAVY METALS

B-1. REAGENTS

B-1.1 Ammonia Solution — Dilute 400 ml of ammonium hydroxide (28 percent) to 1 000 ml with water.

B-1.2 Hydrochloric Acid — 10 percent.

B-1.3 Lead Nitrate Stock Solution — Dissolve 159·8 mg of lead nitrate in 100 ml water containing 1 ml of nitric acid. Dilute with water to 1 000 ml and mix. Prepare and store the solution in lead-free glass containers.

B-1.4 Standard Lead Solution — Dissolve 10 ml of lead nitrate stock solution, accurately measured, with water to 100 ml. Each ml of the solution so prepared contains the equivalent of 10 μg of lead ion (Pb). Prepare solution on the day of use.

B-1.5 Nitric Acid — 10 percent (*v/v*).

B-1.6 Sulphuric Acid — 94·5 to 95·5 percent (*v/v*).

B-1.7 Acetic Acid — 6 percent (*m/v*).

B-1.8 Hydrogen Sulphide — A saturated solution of hydrogen sulphide made by passing H_2S in cold water.

B-2. PROCEDURE

B-2.1 Solution A — Take 2 ml of the standard lead solution in a 50-ml Nessler tube and add 23 ml of water. Adjust the *p*H to between 3·0 and 4·0 by addition of acetic acid or ammonia solution. Dilute with water to 40 ml and mix.

B-2.2 Solution B — Place 500 mg of the sample, accurately weighed in a suitable crucible, add sufficient nitric acid to wet the sample, and carefully ignite at a low temperature until thoroughly charred, covering the crucible loosly with a suitable lid during the ignition. After the substance is thoroughly carbonized, add 2 ml of nitric acid and 5 drops of sulphuric acid and cautiously heat until white fumes are evolved. Then ignite, preferably in a muffle furnace, at 500 to 600°C until the carbon is all burnt off. Cool, add 4 ml of dilute hydrochloric acid, cover and digest on a steam bath for 10 to 15 minutes. Uncover and slowly evaporate on a steam-bath to dryness. Moisten the residue with one drop of hydrochloric acid. Add 10 ml of hot water and digest for 2 minutes. Add, dropwise, amonia solution until the solution is just alkaline to litmus paper. Dilute with water to 25 ml and adjust the *p*H to between 3·0 and 4·0 (*p*H indicator paper) by the addition of diluted acetic acid. Filter, if necessary. Wash the crucible and the filter with 10 ml of water. Transfer to a 50-ml Nessler tube. Dilute the combined filtrate and washings with water to 40 ml and mix.

B-2.3 To each tube add 10 ml of freshly prepared hydrogen sulphide. Mix and allow to stand for 45 minutes and view down over a white surface. The colour of solution B shall not be darker than that of Solution A.

(*Continued from page* 2)

Food Colours and Flavours Subcommittee, AFDC 19 : 1

Convener	*Representing*
SHRI K. V. NAGARAJA	Central Food Laboratory, Central Food Technological Research Institute (CSIR), Mysore
Members	
DR J. C. ANAND	All India Food Preservers' Association, New Delhi
DR S. JINDAL (*Alternate*)	
SHRI S. D. BHARDWAJ	Ajanta Chemical Industries, New Delhi
SHRI KAPIL DEV (*Alternate*)	
SHRI VAM DEV BHARDWAJ	Arun Chemical Industries, New Delhi
SHRI ASHOK DOGRA (*Alternate*)	
SHRI P. K. DHINGRA	Food Research and Standardization Laboratory, Ghaziabad
SHRI M. K. JAIN	National Dairy Research Institute (ICAR), Karnal
SHRI J. C. JAISANI	Directorate General of Health Services, Ministry of Health and Family Welfare, New Delhi
SHRIMATI DEBI MUKHERJEE (*Alternate*)	
SHRI S. KASTHURI	King Institute, Madras
DR S. K. KHANNA	Industrial Toxicology Research Centre, Lucknow
SHRI S. M. MEHTA	Atul Products Limited, Atul
SHRI M. V. DESAI (*Alternate*)	
SHRI V. K. MENON	Amar Dye Chemi Limited, Kalyan
DR M. J. MULKY	Hindustan Lever Limited, Bombay
DR V. R. SHIRHATTI (*Alternate*)	
DR A. G. NAIK KURADE	Indian Dehydrated Foods Industries Association, New Delhi
SHRI B. A. RANE	Hickson & Dadajee Limited, Bombay
SHRI M. W. SHENDE (*Alternate*)	
SHRI B. HANUMANTHA RAU	Bush Boake Allen (India) Limited, Madras
DR T. S. SANTHANAKRISHNAN (*Alternate*)	
DR L. V. L. SASTRY	Central Food Technological Research Institute (CSIR), Mysore
SHRI NAVINCHANDRA R. SHAH	Devarsons Private Limited, Ahmadabad
DR V. K. MEHTA (*Alternate*)	
SHRI S. B. SULE	Naarden (India) Ltd, Bombay
SHRI S. C. VASUDEVAN	Corn Products Co (India) Pvt Ltd, Bombay
SHRI S. R. PALEKAR (*Alternate*)	
SHRI P. C. VIN	Vin Flavours, Vadodara